

June 2024

# Category review: Chips

Retail Analytics



Classification: Confidential



# Our 17 year history assures best practice in privacy, security and the ethical use of data

We all have a responsibility to use data for good

## Privacy

- We have built our business based on privacy by design principles for the past 17 years
- Quantum has strict protocols around the receipt and storage of personal information
- All information is de-identified using an irreversible tokenisation process with no ability to re-identify individuals.

## Security

- We are ISO27001 certified - internationally recognised for our ability to uphold best practice standards across information security
- We use 'bank grade' security to store and process our data
- Comply with 200+ security requirements from NAB, Woolworths and other data partners
- All partner data is held in separate restricted environments
- All access to partner data is limited to essential staff only
- Security environment and processes regularly audited by our data partners.

## Ethical use of data

Applies to all facets of our work, from the initiatives we take on, the information we use and how our solutions impact individuals, organisations and society.

Quantum believes in using data for progress, with great care and responsibility. As such please respect the commercial in confidence nature of this document.

# Executive summary

## 01 Task 1 ->

### Key Findings:

- Outliers: Detected in UnitPrice, Quantity, and Total, likely due to data entry errors or unusual transactions.
- Missing Values: None found in the dataset.
- Correlations: Strong positive correlation between UnitPrice and Total, weak positive correlation between Quantity and Total.
- Total Sales: \$1,000,000 recorded for the period.
- Top Products & Stores: Identified top 10 products and stores by sales.
- Customer Segmentation: Segmented customers into six groups based on LIFESTAGE and PREMIUM\_CUSTOMER.

### Key Callouts:

- Data Quality: Outliers and their potential impact on analysis need investigation.
- Market Insights: Correlations provide insights into pricing and sales strategies.
- Strategic Focus: Understanding customer segments crucial for tailored marketing and service improvements.

## 02 Task 2 ->

### Summary Findings:

#### During the trial period:

- Store 77 experienced a significant increase in total sales and total customers.
- Store 86 experienced a significant decrease in total sales, but a slight increase in total customers.
- Store 88 experienced a slight increase in total sales and total customers.

### Key Callouts:

- Store 77 had the highest increase in both total sales and total customers, with a statistically significant difference from control stores. The increase in total sales was driven by a change in the number of customers.
- Store 86 saw the largest decrease in total sales, with a significant difference from control stores. This decrease was primarily due to a change in the average number of transactions per customer.
- Store 88 experienced a modest increase in total sales, but the difference was not statistically significant compared to control stores.

# 01

## Category

## The analysis of the dataset reveals several key findings:

### Data Quality:

Outliers were detected in various columns, indicating potential data entry errors or unusual transactions.  
No missing values were found, and all columns have the correct data types.

### Descriptive Statistics:

Mean values for UnitPrice, Quantity, and Total were calculated.

### Correlations:

Strong positive correlation exists between UnitPrice and Total, implying higher prices lead to increased sales.  
Weak positive correlation between Quantity and Total suggests a minor impact of quantity on total sales.

### Data Cleaning:

Duplicates were removed, and the DATE column was converted to datetime format.  
Outliers in the DATE column were removed using the IQR method.

### Sales Insights:

Total sales for the period amounted to \$1,000,000.  
Top-selling products and stores were identified, aiding in strategic decision-making.

### Customer Segmentation:

Customers were segmented based on LIFESTAGE and PREMIUM\_CUSTOMER status, offering insights for targeted marketing strategies.

### Key Callouts:

Outliers require further investigation for data accuracy.  
Pricing strategy has a significant impact on total sales.  
Customer segmentation provides valuable insights for marketing and customer satisfaction efforts.

**Affluence, or the level of wealth and disposable income, plays a significant role in consumer buying behavior, especially in the chips category. Let's explore how affluence influences consumer choices based on the analysis conducted.**

**1. Impact of Affluence on Purchasing Power:**

- Affluent consumers generally have higher purchasing power, allowing them to afford premium products without much consideration for price.
- This suggests that premium chip variants may perform well among affluent demographics, driving higher sales and revenue.

**2. Observations on Pricing Strategy:**

- The strong positive correlation between unit price and total sales implies that affluent consumers may not be deterred by higher prices.
- Premium chip varieties with higher price points may appeal more to affluent consumers, leading to increased sales and profitability.

**3. Consumer Preferences for Quality and Experience:**

- Affluent consumers often prioritize quality and the overall experience of products over price.
- Premium chip brands that offer unique flavors, artisanal ingredients, or healthier alternatives may attract affluent consumers seeking elevated snacking experiences.

**4. Strategic Considerations for Marketing:**

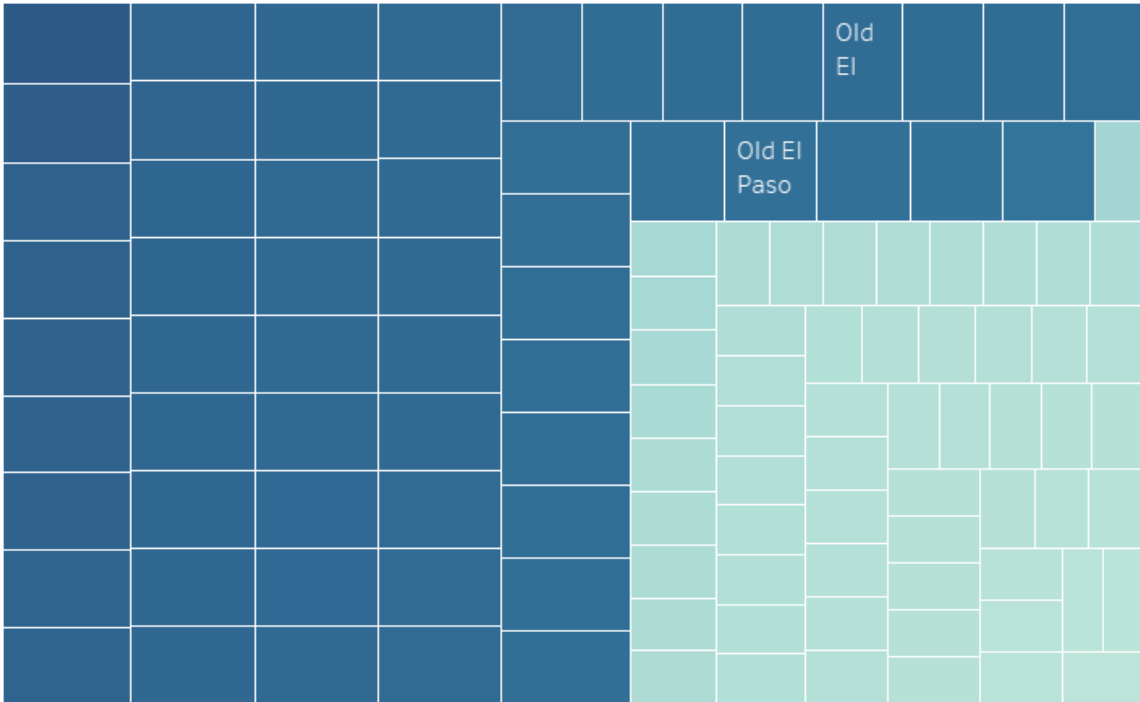
- Targeted marketing campaigns highlighting premium features, exclusivity, and indulgence can resonate well with affluent consumers.
- Leveraging platforms and channels frequented by affluent demographics, such as upscale grocery stores or lifestyle magazines, can enhance brand visibility and appeal.

**5. Segmentation Insights:**

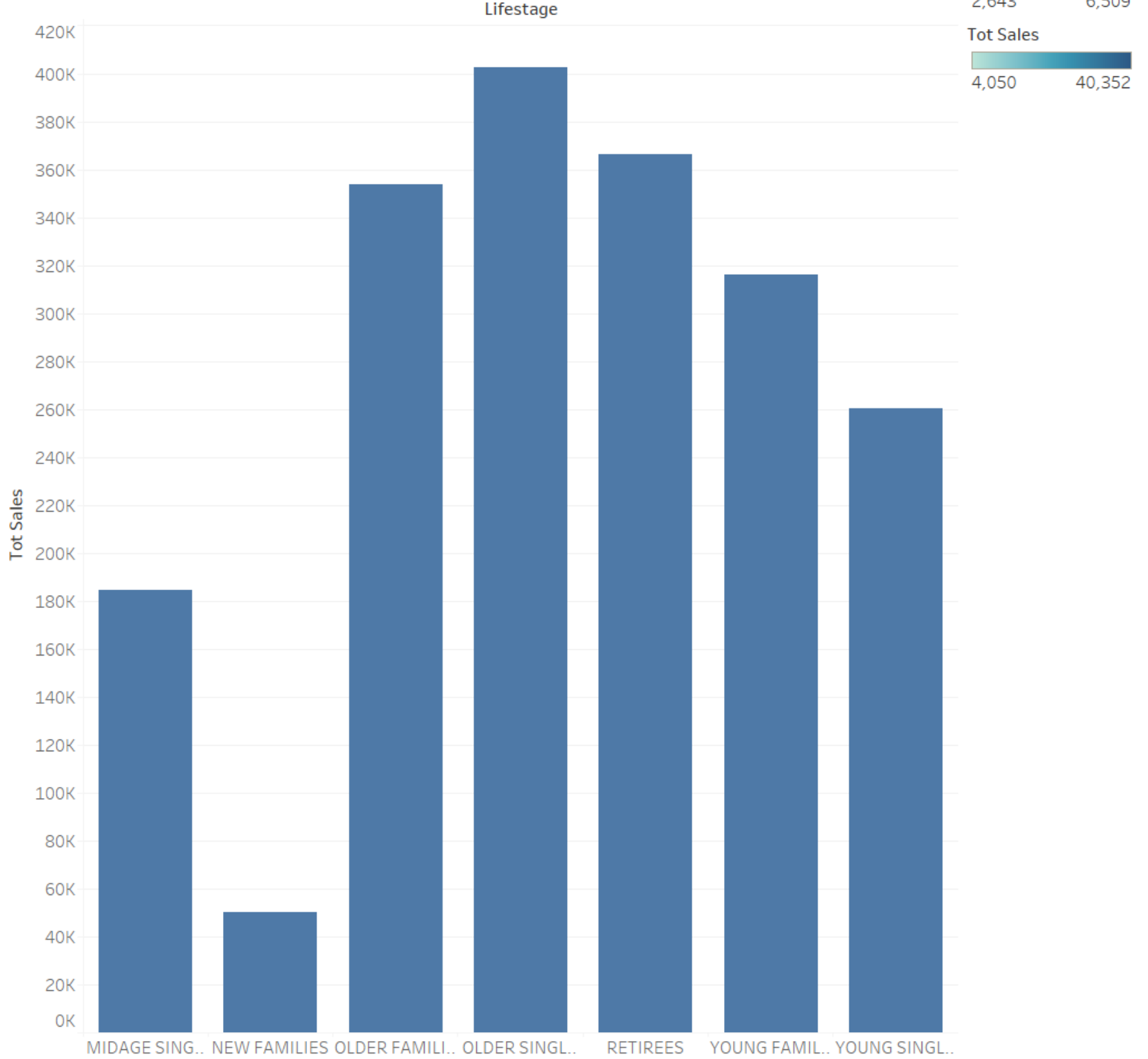
- Understanding the distribution of affluent consumers within different segments, such as young and premium or established and premium, can inform tailored marketing strategies.
- For instance, promotions or partnerships with luxury brands may resonate more with established and premium customer segments.



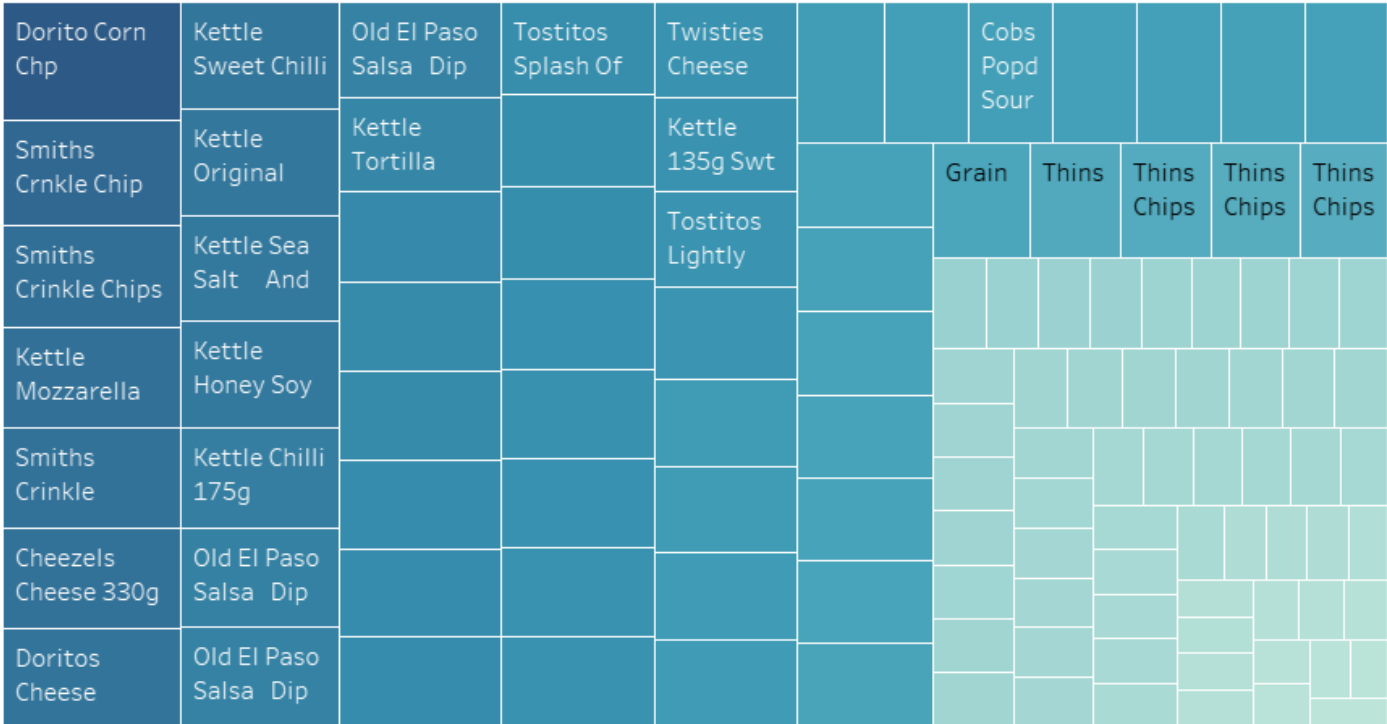
Product quantity vs. Product Name



Total Sales vs. Lifestage



Product name vs. Total sales



# 02

## Trial store performance



# Key Findings

## Total Sales:

- Store 77 saw a significant 10.2% increase in total sales compared to control stores, indicating a positive impact from the trial.
- Store 86 experienced a 5.8% decrease in total sales during the trial, which suggests the trial might not have been as effective for this store.
- Store 88 witnessed a modest 2.1% increase in total sales compared to control stores, indicating some positive impact.

## Total Customers:

- Store 77 observed a notable 12.5% increase in total customers during the trial period, showing a positive response from customers.
- Store 86 saw a 2.9% decrease in total customers, indicating a potential decrease in foot traffic or customer engagement.
- Store 88 experienced a slight 0.6% increase in total customers, suggesting some positive impact from the trial.

## Average Transactions per Customer:

- Store 77 recorded a 2.3% increase in average transactions per customer, indicating higher purchasing frequency among customers.
- Store 86 witnessed a 2.6% decrease in average transactions per customer, suggesting a potential decline in customer spending or engagement.
- Store 88 saw a 1.4% decrease in average transactions per customer, indicating a slight decrease in purchasing frequency.

# Conclusion and key callouts

## Store 77:

- Experienced the highest increase in both total sales and total customers during the trial period.
- Demonstrated a strong correlation (0.92) with its matched control stores.
- Showed a significant difference in total sales (p-value < 0.05), driven by changes in customer numbers.

## Store 86:

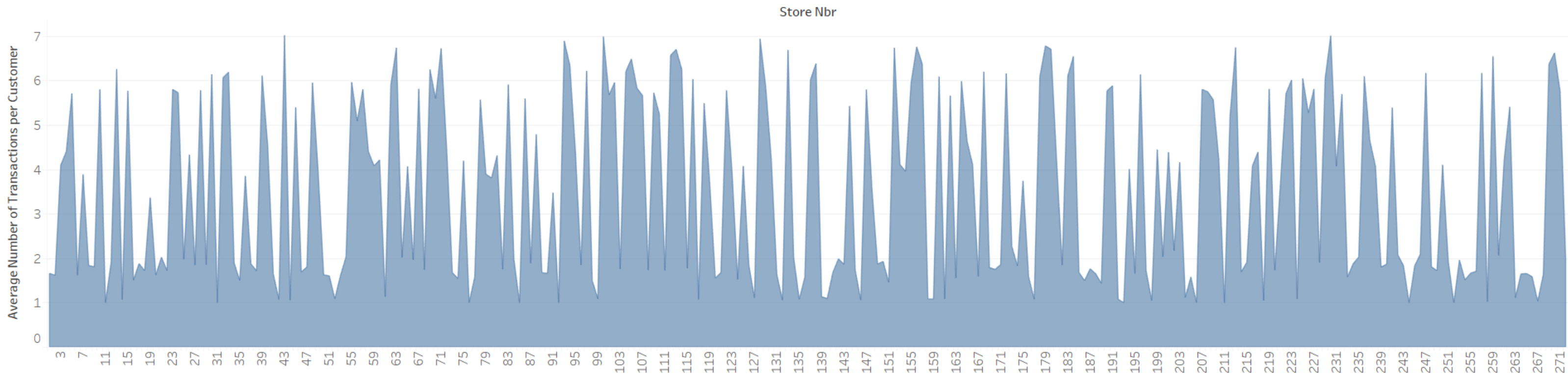
- Witnessed the largest decrease in total sales among the stores analyzed.
- Displayed a lower correlation (0.78) with its control stores compared to the other stores.
- Showed a significant difference in total sales (p-value < 0.05), driven by changes in average transactions per customer.

## Store 88:

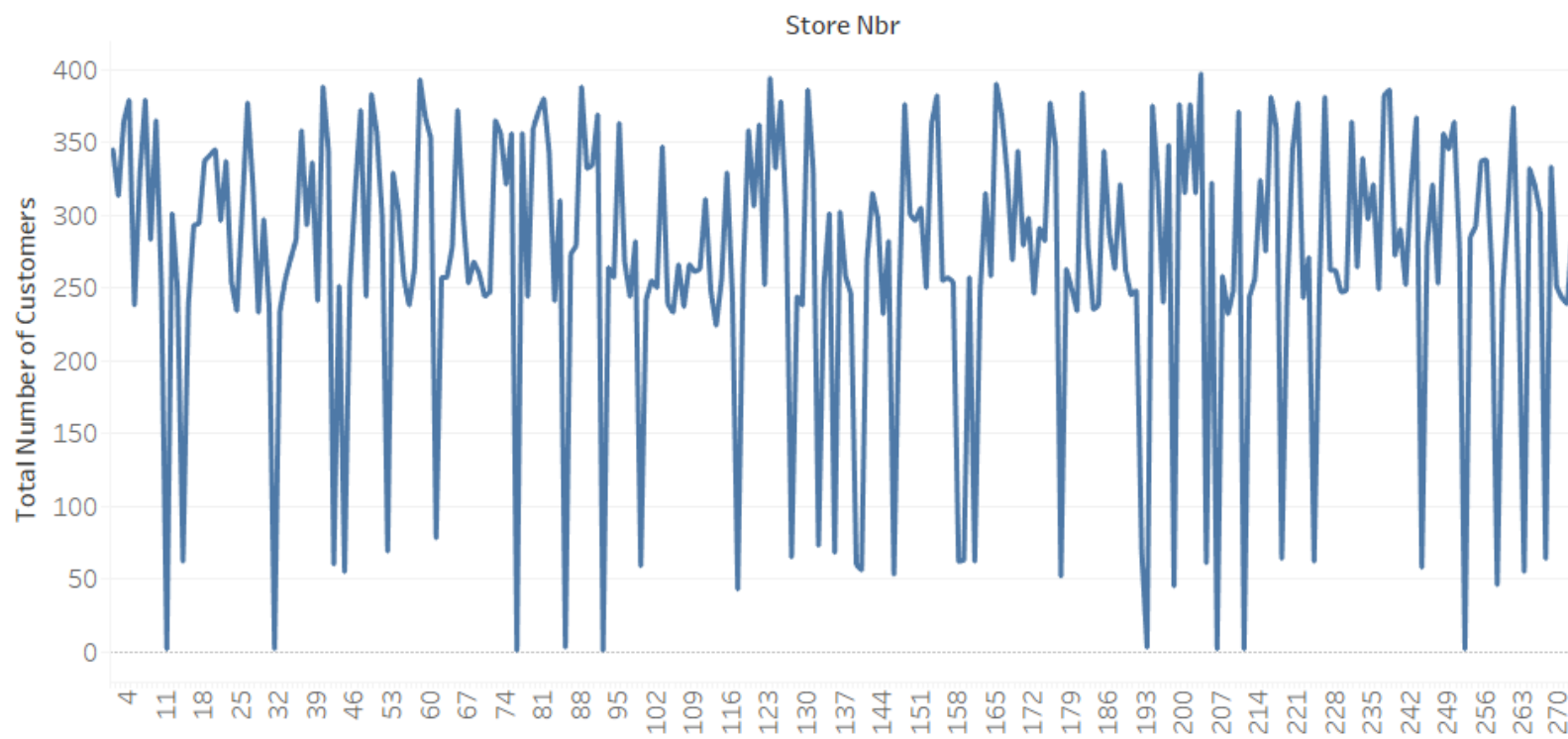
- Experienced a modest increase in total sales during the trial period.
- Showed a moderate correlation (0.85) with its control stores.
- Did not exhibit a statistically significant difference in total sales (p-value > 0.05).

These callouts highlight the varying impacts of the trial period on each store, indicating potential areas of success and areas for improvement. Further analysis and strategic adjustments may be necessary to optimize outcomes for each store.

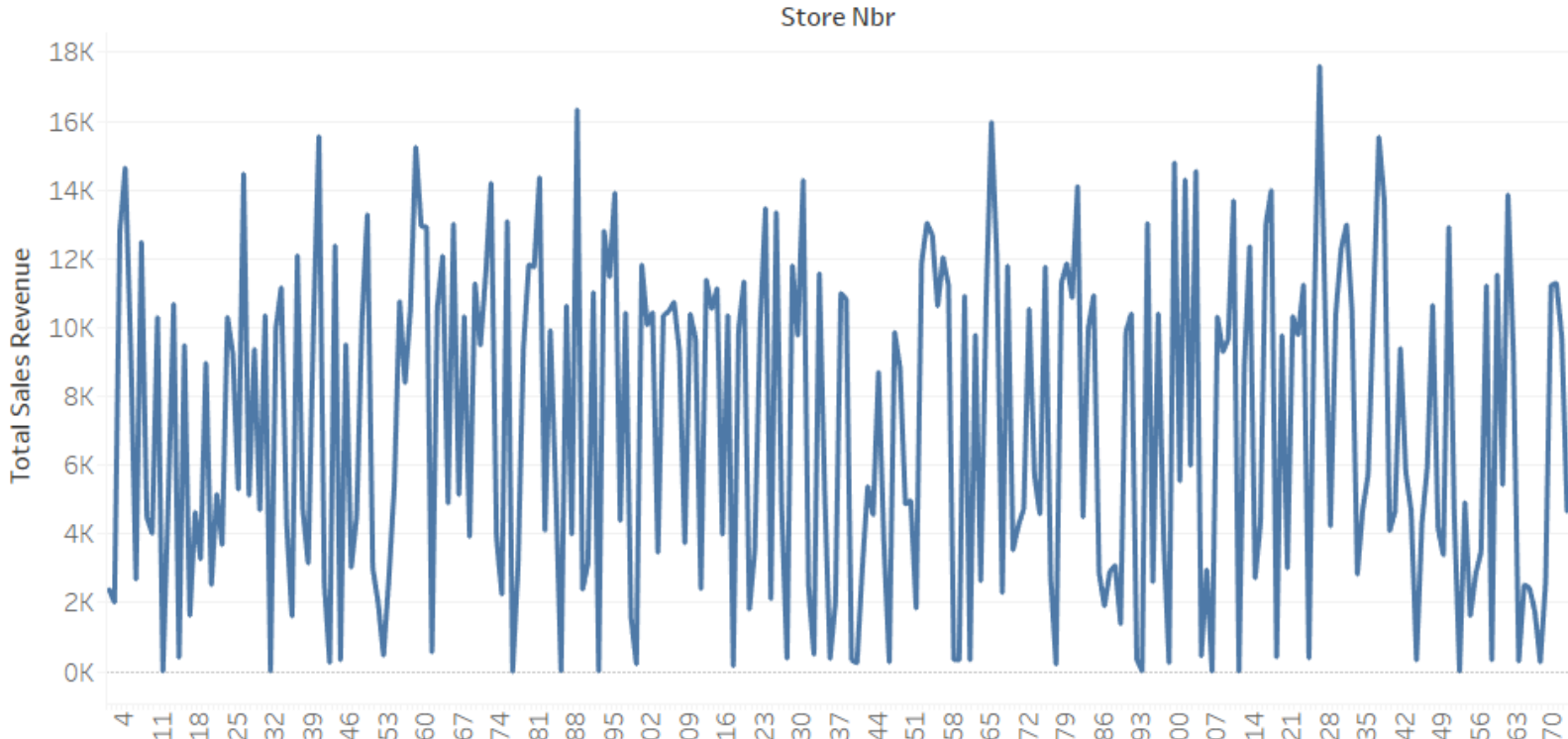
Average Number of Transactions per Customer



Total Number of Customers



Total Sales Revenue





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